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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/967,090	09/27/2001	George C.K. Chen	60617.300501	6634

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INTELLECTUAL PROPERTY LAW OFFICE
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EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/967,090

Applicant(s)

CHEN, GEORGE C.K.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 6. 6) ☐ Other:

DETAILED ACTION

Drawings

- The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "16" and "19" have both been used to designate "cavity". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

- The abstract of the disclosure is objected to because it contains more than one paragraphs. Correction is required. See MPEP § 608.01(b).

Claim Objections

- **Claims 2, 3, 4, 7, 8, 9, and 11-12 are objected** to because of the following informalities:
 - (1) The phrase "a cavity" recited in claims 2, 3, 7, and 8 is indefinite since it is not clear how does it relate to the "cavity" recited in their respective based claim.
 - (2) The phrase "the ITU grid" recited in claims 4 and 9 is indefinite since it lacks a proper antecedent basis from their respective based claim.
 - (3) The phrase "said wavelength *reference* is the ITU grid" recited in claim 9 is confusing since it is not clear if the wavelength reference or the wavelength standard is the ITU grid.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

- The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification fails to teach the support for the “filled gas of variable pressure **and** composition”, it only gives support for the filled gas of variable pressure **or** composition.

Claim Rejections - 35 USC § 102

- The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

- The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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- Claims 1, 4, 5, 6, 9, 10, 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to Ip (PN. 6,141,130).

Ip teaches a *spectral equalizer* (100, Figure 1) for multiplexed channels wherein the spectral equalizer comprises a *Fabry Perot etalon* that is comprised of a *pair of partially reflective surfaces* (13 and 14) separated by a distance *d* to form a *light transmissive resonating cavity* (15). Ip teaches that the cavity may be filled with *gas* wherein by varying the *density* or *composition* due to changes in *pressure*, *temperature* or *humidity* the refractive index of the gas can be *varied* to *tune* the resonance and anti-resonance wavelengths of the etalon, (please see column 5, lines 20-28). The Fabry Perot etalon creates *periodically varying spectral response* as shown in Figure 2. Ip further teaches that by varying the properties therefore the refractive index of the gas, the Fabry Perot etalon can be *tuned* to align with predetermined channel spacing such as *ITU channel plan*, that serves as the standard wavelength, (please see column 5, lines 15-19). The gas is then *sealed* within the cavity so that the refractive index of the gas is *fixed*, (please see column 5, line 27-30). The spectral equalizer with the Fabry Perot etalon therefore provides a wavelength reference.

With regard to claims 5 and 10, Ip teaches that the reflective surfaces (13 and 14) are *partially reflective* which means they are *partially transmissive*, (please see column 3, lines 29-30).

With regard to claims 13 and 14, Ip teaches that the gas is *sealed* within the cavity (15), wherein the cavity as shown in Figure 1 comprises *enclosure walls* that form *sealable enclosure*.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- **Claims 2-3 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Ip in view of the Japanese Patent Tachikawa et al (JP401250833A).**

The spectral equalizer that is comprised of a Fabry Perot etalon taught by Ip as described for claims 1 and 6 above has met all the limitations of the claims. Ip teaches that the properties of the gas within the cavity of the etalon, such as the pressure, temperature or humid may be changed in order to tune the etalon. However this reference does not teach explicitly to include an enclosure surrounding the cavity that is filled with the gas. Tachikawa et al in the same field of endeavor teaches an arrangement and method to vary the properties such as pressure or temperature of the gas medium in the cavity of a Fabry Perot etalon wherein a *container* (3, Figure 1) serves as the *enclosure* that is filled with the gas surrounds the cavity (2) formed by the *reflective plates*. By varying the properties of the gas in the container the refractive index of the gas in the cavity is varied so that the etalon is tuned. It would then have been obvious to one skilled in the art to apply the teachings of Tachikawa et al to modify the spectral equalizer of Ip for the benefit of providing a buffer environment as intermediate means to vary the properties of the gas in the etalon so that the variation of the refractive index of the etalon therefore the tuning of the etalon could be conducted in a more accurately controlled manner.

- **Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Ip in view of the Japanese Patent Tachikawa et al (JP401250833A).**

Ip teaches a spectral equalizer (100, Figure 1) for multiplexed channels wherein the spectral equalizer comprises a *Fabry Perot etalon* that is comprised of a *pair of partially reflective surfaces* (13 and 14) separated by a distance *d* to form a *light transmissive resonating cavity* (15). Ip teaches that the cavity may be filled with *gas* wherein by varying the *density* or *composition* due to changes in *pressure*, temperature or humidity the refractive index of the gas can be *varied* to *tune* the resonance and anti-

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resonance wavelengths of the etalon, (please see column 5, lines 20-28). The Fabry Perot etalon creates *periodically varying* spectral response as shown in Figure 2. Ip further teaches that by varying the properties therefore the refractive index of the gas, the Fabry Perot etalon can be tuned to *align* with predetermined channel spacing such as *ITU channel plan*, which serves as the standard wavelength, (please see column 5, lines 15-19). The gas is then *sealed* within the cavity so that the refractive index of the gas is *fixed*, (please see column 5, line 27-30). The spectral equalizer with the Fabry Perot etalon therefore provides a wavelength reference. It would have been obvious to one skilled in the art to vary *both* the *pressure* and the *composition* to vary the refractive index of the gas for the benefit of adding more degrees of control to tune the etalon.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly to include an enclosure surrounding the cavity that is filled with the gas. Tachikawa et al in the same field of endeavor teaches an arrangement and method to vary the properties such as pressure or temperature of the gas medium in the cavity of a Fabry Perot etalon wherein a *container* (3, Figure 1) serves as the *enclosure* that is filled with the gas surrounds the cavity (2) formed by the reflective plates. By varying the properties of the gas in the container the refractive index of the gas in the cavity is varied so that the etalon is tuned. It would then have been obvious to one skilled in the art to apply the teachings of Tachikawa et al to modify the spectral equalizer of Ip for the benefit of providing a buffer environment as intermediate means to vary the properties of the gas in the etalon so that the variation of the refractive index of the etalon therefore the tuning of the etalon could be conducted in more accurately controlled manner.

Double Patenting

- The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759

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F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

- **Claims 1-14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 9, 12-16 and 22 of U.S. Patent No. 6,552,856.**

Although the conflicting claims are not identical, they are *not patentably distinct* from each other because they both disclose a system and method for applying the system that is comprised of an *etalon* having a *gas-tunable medium* within the *cavity* where the *gas-tunable medium has a variable optical index of refraction*. The etalon is tuned by varying the *pressure* or *composition* of the gas in the cavity and the etalon is tuned to align with reference wavelength such as the ITU grid. The refractive index of the gas is fixed after the alignment. It is implicitly true that the etalon has a pair of reflective surfaces, which defines the cavity.

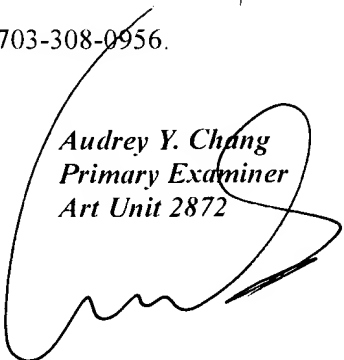
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.
May 15, 2003